Amendments to the claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A polynucleotide ~~which~~that comprises a sequence encoding an HIV envelope protein ~~or fragment or immunogenic derivative thereof~~, fused to at least one sequence encoding an HIV non-structural or capsid protein ~~or fragment or immunogenic derivative thereof~~, operably linked to a heterologous promoter.

2. (Currently Amended) The polynucleotide according to claim 1, wherein the HIV envelope protein is gp120 ~~or a fragment or immunogenic derivative thereof~~.

3. (Currently Amended) The polynucleotide according to claim 1 ~~or claim 2~~ wherein the at least one non-structural or capsid protein ~~or fragment or immunogenic derivative thereof~~ is selected from the group of: ~~one or more of~~ Nef, Gag, RT [[or]]and Tat.

4. (Currently Amended) The polynucleotide according to claim 3 wherein the gp120 encoding sequence is linked to a sequence encoding HIV RT ~~or a fragment or immunogenic derivative thereof~~ and a sequence encoding HIV Gag ~~or fragment or immunogenic derivative thereof~~ and a sequence encoding HIV Nef ~~or a fragment or immunogenic derivative thereof~~ to encode a gp120, RT, Gag and Nef-containing fusion protein.

5. (Currently Amended) The polynucleotide according to claim 4, wherein the fusion protein is selected from the group of: gp120-RT-Nef-Gag and RT-Nef-Gag-gp120.

6. (Currently Amended) The polynucleotide according to claim 3 wherein the gp120 encoding sequence is linked to a sequence encoding HIV Nef ~~or an immunogenic derivative thereof~~ to encode a gp120 and Nef-containing fusion protein.

7. (Currently Amended) The polynucleotide according to claim 6 wherein the gp120 sequence is further linked to a sequence encoding HIV Tat ~~or a fragment or immunogenic derivative thereof~~ to encode a gp120, Tat and Nef-containing fusion protein.

8. (Currently Amended) The polynucleotide according to claim 7 encoding a gp120-Nef-Tat fusion protein.

9. (Currently Amended) The polynucleotide according to claim 7 further comprising a sequence encoding HIV Gag ~~or fragment or immunogenic derivative thereof~~ to encode a gp120-Gag-Nef-Tat fusion.

10. (Currently Amended) The polynucleotide according to ~~any one of claims 3, 4, 5 or 9~~ claim 3 wherein the Gag comprises one or both of p17 ~~and/ 24~~or and p24.

11. (Currently Amended) The polynucleotide according to ~~any one of claims 1 to 10~~ claim 1 wherein the HIV envelope ~~molecule~~protein is substantially non-glycosylated when expressed in a mammalian target cell.

12. (Currently Amended) The polynucleotide according to claim 11 wherein the HIV envelope ~~molecule~~protein lacks a functional secretion signal.

13. (Currently Amended) The polynucleotide according to ~~any one of claims 1 to 12~~ claim 3 wherein at least one ~~or more~~ of the sequences encoding gp120, Nef, Gag, RT [[or]]and Tat is ~~or are~~ codon optimised to resemble ~~the~~ codon usage in a highly expressed human gene.

14. (Currently Amended) A polynucleotide sequence selected from the group of:

~~1. gp120 codon optimised, minus secretion signal – tr Nef~~

~~2. gp120 codon optimised, minus secretion signal – tr Nef – mTat~~

~~3. gp120 codon optimised, minus secretion signal – Nef – mTat~~

~~4. gp120 codon optimised, minus secretion signal – p17/24 Gag – tr Nef~~

~~7. gp120 codon optimised, minus secretion signal – p17/24 Gag – tr Nef – mTat~~

~~8. gp120 codon optimised, minus secretion signal - p17/24 gag - Nef-mTat~~

~~9. gp120 codon optimised, minus secretion signal - p17/24 gag - mNef-mTat~~

~~10. gp120 codon optimised, minus secretion signal - p17/24 gag - L1Nef-mTat~~

~~11. gp120 codon optimised, minus secretion signal - p17/24 gag - L2Nef-mTat~~

~~12. gp120 codon optimised, minus secretion signal - p17/24 gag - LLNef-mTat~~

~~13. gp120 codon optimised, minus secretion signal - p17/24 gag - mLLNef-mTat~~

~~14. gp120 codon optimised, minus secretion signal - p17/24 gag - mL1Nef-mTat~~

~~15. gp120 codon optimised, minus secretion signal - p17/24 gag - mL2Nef-mTat~~

~~16. gp120 codon optimised - trNef~~

~~17. gp120 codon optimised - trNef-mTat~~

~~18. gp120 codon optimised - Nef-mTat~~

~~19. Nef-mTat- gp120 codon optimised~~

~~20. trNef-mTat- gp120 codon optimised~~

~~21. gp120 codon optimised - p17/24 Gag - tr Nef~~

~~22. gp120 codon optimised - p17/24 Gag - tr Nef-mTat~~

~~23. gp120 codon optimised, minus secretion signal - mRT- trNef - p17/24 Gag~~

~~24. mRT - trNef - p17/24 Gag - gp120 codon optimised, minum secretion signal~~

~~wherein RT and Gag are codon optimised.~~

gp120 codon optimized, minus secretion signal – tr Nef,

gp120 codon optimized, minus secretion signal – tr Nef – mTat,

gp120 codon optimized, minus secretion signal – Nef – mTat,

gp120 codon optimized, minus secretion signal – p17/24 Gag – tr Nef,

gp120 codon optimized, minus secretion signal – p17/24 Gag – tr Nef – mTat,

gp120 codon optimized, minus secretion signal - p17/24 gag - Nef-mTat,

gp120 codon optimized, minus secretion signal - p17/24 gag - mNef-mTat,

gp120 codon optimized, minus secretion signal - p17/24 gag - L1Nef-mTat,

gp120 codon optimized, minus secretion signal - p17/24 gag - L2Nef-mTat,

gp120 codon optimized, minus secretion signal - p17/24 gag - LLNef-mTat,

gp120 codon optimized, minus secretion signal - p17/24 gag - mLLNef-mTat,

gp120 codon optimized, minus secretion signal - p17/24 gag - mL1Nef-mTat,

gp120 codon optimized, minus secretion signal - p17/24 gag - mL2Nef-mTat,

gp120 codon optimized – trNef,

gp120 codon optimized - trNef-mTat,

gp120 codon optimized - Nef-mTat,

Nef-mTat- gp120 codon optimized,

trNef-mTat- gp120 codon optimized,

gp120 codon optimized - p17/24 Gag – trNef,

gp120 codon optimized – p17/24 Gag – trNef-mTat,

gp120 codon optimized, minus secretion signal – mRT- trNef – p17/24 Gag, and

mRT – trNef – p17/24 Gag – gp120 codon optimized, minus secretion signal,

wherein RT and Gag are codon optimized.

15. (Currently Amended) The polynucleotide according to ~~any one of claims 1 to 14~~ claim 1 wherein the promoter is ~~the promoter~~ from HCMV IE gene.

16. (Currently Amended) The polynucleotide according to claim 15, wherein [[the]]a 5' untranslated region between the promoter and the coding ~~polynucleotide~~sequence comprises exon 1.

17. (Currently Amended) A vector comprising a polynucleotide as claimed in ~~any one of claims 1 to 16~~ claim 1.

18. (Currently Amended) The vector according to claim 17, wherein the vector ~~which~~ is a double-stranded DNA plasmid.

19. (Currently Amended) The vector according to claim 17, wherein the vector ~~which~~ is a replication defective adenovirus vector.

20. (Currently Amended) The vector according to claim 19, wherein the vector ~~which~~ is derived from the group of: Pan 9, 5, 6 [[or]]and 7.

21. (Currently Amended) A fusion protein comprising an HIV envelope protein ~~or fragment or immunogenic derivative thereof~~ and at least one additional HIV protein ~~or fragment or immunogenic derivative~~ selected from non-structural or capsid proteins.

22. (Currently Amended) A fusion protein according to claim 21 wherein the fusion protein is selected from: gp120-RT-Nef-Gag and RT-Nef-Gag-gp120.

23. (Currently Amended) A polypeptide encoded by the polynucleotide or vector according to ~~any of claims 1 to 20~~ claim 1.

24. (Currently Amended) A pharmaceutical composition comprising a ~~nucleotide sequence according to any one of claims 1 to 16, a~~ vector ~~of any one of claims~~according to claim 17 ~~to 20~~, ~~a fusion protein of claim 21 or 22 or a polypeptide of claim 23,~~ and [[a]]at least one element chosen from the group of: a pharmaceutically acceptable excipient, diluent, carrier, [[or]]and an adjuvant.

25. (Currently Amended) The pharmaceutical composition according to claim 24, wherein the carrier is a plurality of particles ~~such as gold beads~~.

26. (Currently Amended) The pharmaceutical composition according to claim 24[[or 25]]suitable for delivery in a prime boost format.

27. (Currently Amended) An intradermal delivery device comprising a pharmaceutical composition according to ~~any one of claims 24 to 26~~ claim 24.

28. (Currently Amended) A method of treating a patient suffering from or susceptible to a disease comprising administering a safe and effective amount of a pharmaceutical composition according to ~~any one of claims 24 to 26~~claim 24.

29-30. (Cancelled)

31. (Currently Amended) A process for the production of a polynucleotide according to ~~any one of claims 1 to 16~~ claim 1 comprising linking a nucleotide sequence encoding [[an]]a substantially non-glycosylated HIV envelope protein ~~or fragment or immunogenic derivative, preferably a non-glycosylated gp120 sequence,~~ and a sequence encoding an HIV non-structural or capsid protein ~~or fragment or immunogenic derivative~~, to a heterologous promoter sequence.

32. (Currently Amended) A polynucleotide that comprises a sequence encoding an HIV Tat proteinmolecule or fragment or immunogenic derivative in a fusion with at least two further HIV antigens.

33. (Currently Amended) The polynucleotide according to claim 32 wherein the two further HIV antigens include are selected from the group of: gp120, [[and]]Nef, and optionally Gag and/or and RT, or fragments or immunogenic derivatives thereof.

34. (Cancelled)

35. (New) The pharmaceutical composition according to claim 24, wherein the carrier is gold beads.